

Livedo Racemosa, Reticulated Ulcerations, Panniculitis and Violaceous Plaques in a 46-year-old Woman

Abstract

Clinically amyopathic dermatomyositis (CADM) is a subset of dermatomyositis (DM) that has conventional cutaneous manifestations of DM, but paradoxically, little or no muscle involvement. In 2005, a novel antibody was described in association with CADM – anti-melanoma differentiation-associated gene 5 (anti-MDA5). Patients with this serologic marker have a characteristic mucocutaneous phenotype consisting of skin ulceration among other signs. We describe the case of a 46-year-old woman with CADM, elevated anti-MDA5 autoantibodies, and unusual clinical features (livedo racemosa, florid acral edema) among the classical phenotype of MDA5 DM (arthralgias, ulcerations, panniculitis) and classical DM lesions (Gottron papules, heliotrope rash). The patients did not develop interstitial lung disease or internal malignancies and experienced a rapid response to prednisolone and intravenous immunoglobulins. After 2 years, she has no relapse of her cutaneous disease and continues 5 mg prednisolone and 2 g/kg kilogram of intravenous immunoglobulin every 3 months for maintenance. Our case highlights the clinical heterogeneity of CADM and underscores the importance of a comprehensive approach to DM patients. It was previously postulated that anti-MDA5 antibody could target vascular cells and compromise vascular function, the presence of livedo racemosa lesions, and MDA5 antibodies in a patient with negative thrombophilia workup, reinforce this idea. This is the first case, to our knowledge, of CADM with acral panniculitis and livedo racemosa.

Keywords: Autoantibody, clinical amyopathic dermatomyositis, immunodermatology, melanoma differentiation-associated gene 5

Introduction

Clinically amyopathic dermatomyositis (CADM) is a subset of dermatomyositis (DM) that has conventional cutaneous manifestations of DM but little or no muscle involvement. Some CADM are associated with a recently described antibody – anti-melanoma differentiation-associated gene 5 (anti-MDA5).^[1] Patients with this serologic marker have a characteristic mucocutaneous phenotype. We describe a patient with CADM and MDA5 autoantibodies, with some unusual clinical features.

Case Report

A 46-year-old woman was referred to our clinic for a cutaneous eruption arising in the setting of persistent acral edema and nonspecific arthralgia. She was taking oral prednisone and hydroxychloroquine for 2 months leading up to the onset of her skin disease.

Physical examination revealed an incomplete reticulated erythema overlying the acral surfaces, namely the hands, thighs, and feet, with a ruddy-to-violaceous hue [Figure 1a-c]. Thin violaceous plaques were noted on the metacarpophalangeal joints [Figure 1d], bilateral eyelids [Figure 2a], and patellar surface. Discrete reticulated ulcerations were present on the palmar surfaces, extensor surface of the forearms, and distal toes, identified in various stages of evolution [Figures 1a-c and 2b]. Erythematous nodules were noted on the thighs and dorsal feet [Figure 2c]. Lastly, chronic severe edema affected the distal upper and lower extremities. Proximal muscle strength was normal. Laboratory findings revealed normal levels of creatine kinase and aldolase, elevated C-reactive protein (23.9 mg/L), and positive antinuclear antibodies (1:320). Anti-SSA/Ro52 and anti-MDA5 antibodies were also positive.

High-resolution chest/abdominal computed tomography along with mesenteric, celiac,

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Figure 1: (a) Cyanosis on the left hand and skin ulcer on the fourth finger. (b) Subtle livedo reticularis in fingers dorsum, without cuticle involvement. (c) Intense livedo reticularis lesions in right palm, together with cyanosis in distal phalange. (d) Erythematous-violaceous papules over left knuckles, one of them also hyperkeratotic due to a previous ulcer

and renal arteriography and upper and lower extremities electroneuromyography were normal. An age-appropriate malignancy screening was unremarkable. Upper extremities arteriography showed good permeability in proximal digital arteries of both hands but a filiform aspect distally where they seemed to collapse. Thrombophilia workup was negative.

Two biopsies were obtained. The first biopsy from the right dorsal hand demonstrated a sparse superficial perivascular infiltrated of lymphocytes, a muted rete ridge pattern, and dilated papillary dermal vessels with swollen endothelial cells in the superficial and deep plexus [Figure 3a]. The second skin biopsy harvested from the right dorsal foot showed a predominantly septal neutrophilic infiltrates and necrosis without vascular involvement [Figure 3b]. Coupling the physical examination (heliotrope rash, Gottron papules, ulcers) with histomorphology and serologic findings, a diagnosis of CADM was rendered.

The patient was treated initially with intravenous (iv) infusions of rituximab (1 g every 15 days), iv prednisolone (60 mg/day), and iv immunoglobulin (1 g/kg 2 consecutive days every 15 days). Subsequently, she experienced a rapid clinical response with only minimal cutaneous disease at 4-month follow-up. After a total of 24 months, she has no relapse of her cutaneous disease and continues 5 mg of oral prednisolone and iv immunoglobulin every 3 months.

Discussion

DM is a multisystem autoimmune disease characterized by chronic inflammation that mainly affects the skin and skeletal muscle. CADM is a subset of DM that has conventional cutaneous manifestations of DM but



Figure 2: (a) Violet erythema in both eyelids, without involvement of nasal dorsum. (b) Erythematous plaque on the right elbow with central desquamative and hyperkeratotic area from a previous ulcer. (c) Right dorsum foot with erythematous warm and tender nodule

little or no muscle involvement within 6 months since the onset of skin disease and without any therapeutic intervention.

Three major cutaneous criteria (heliotrope rash, Gottron papules, Gottron sign) or two major and one minor criteria (violaceous erythema on the neck/upper chest, violaceous erythema on the lateral hips and/or thighs, mechanics hands, calcinosis, pruritus, cutaneous ulcers) are requisite for the diagnosis of CADM.

There is a relative paucity of CADM cases in the literature,^[2] but nearly 18–20% of DM patients have an amyopathic phenotype, representing 2 cases per 10⁶ each year.^[1-3] Prevalence of anti-MDA5 antibody varies significantly between studies in the literature, ranging from 0% to 100% in CADM patients; however, compared with other subtypes of DM, this antibody is most commonly associated with an amyopathic phenotype.^[2,3]

MDA-5 antibody has been strongly associated with mucocutaneous lesions in DM. Typical clinical findings include palmar papules, arthritis/arthralgias, reticulated ulcerations, painful oral erosions/ulcers, mechanic's hands, nonscarring alopecia, and panniculitis.^[4,5] With regards to the latter manifestation, DM-associated panniculitis is generically described in dermatology textbooks as an observation in conventional DM. However, only 28 cases of DM manifesting with panniculitis have been described in the medical literature to date.^[6,7] To our knowledge, our case represents the first to show panniculitic lesions on the dorsal inferior extremities in association with CADM.

Anti-MDA5 is strongly associated with rapidly progressive interstitial lung disease (ILD). Although rapidly progressive ILD seems to be uncommon in non-Asian population.^[4,8]

Internal malignancy appears to be less common in anti-MDA5 patients and probably also in amyopathic patients as a whole versus conventional DM.^[1,9] Despite this, it is mandatory for all CADM patients to perform

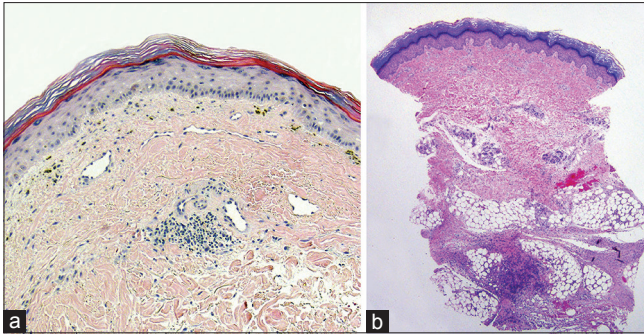


Figure 3: (a) Superficial perivascular infiltrate of lymphocytes, with epidermal atrophy and dilated papular vessels with prominent endothelial cells (biopsy from the right-hand dorsum). (b) Dense, mostly septal, neutrophilic infiltrate with necrosis of fat lobules and calcium deposition, without dermal or epidermal involvement (biopsy from the right foot). Hematoxylin and eosin stain, original magnification: (a) $\times 10$, (b) $\times 2$

an initial screening to fully exclude ILD and internal malignancies.

Treatment options are not well established for CADM. Oral high-dose steroids tends to be considered as first-line interventions.^[1]

In summary, our patient displayed many of the hallmark features of the anti-MDA5 phenotype, however, independent of this serologic positivity, livedo racemosa and florid acral edema were unusual features rarely observed in conventional DM.^[9] It was previously postulated that anti-MDA5 antibody could target vascular cells and compromise vascular function.^[4] The onset of livedo-like lesions and slow to heal procedural wounds, as observed in our patient, might reinforce this link.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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